

1102-17-30

Houssein El Turkey* (houssein.el.turkey@gmail.com). *Complexity and z -complexity over Lie superalgebras.*

We compute the complexity of certain families of modules over a classical Lie superalgebra defined over the complex numbers. Boe, Kujawa, and Nakano computed the complexity of the simple and the Kac modules over the general linear Lie superalgebra of Type A . A natural continuation to their work is computing the complexity of the same family of modules over the ortho-symplectic Lie superalgebra of Type C . We give a geometric interpretation of the complexity similar to that in Type A . The complexity is not a categorical invariant. However, we compute a categorical invariant called the z -complexity and we interpret this invariant geometrically in terms of a specific detecting subsuperalgebra. In addition, we compute the complexity and the z -complexity of the simple modules over the Lie superalgebras $\mathfrak{osp}(3|2)$, $D(2, 1; \alpha)$, $G(3)$, and $F(4)$. (Received June 27, 2014)